AMENDMENTS TO THE CLAIMS:

This listing of the claims below will replace all prior versions and listing of claims in this application.

1. (**Previously presented**) A method for identifying a protein which has an elevated binding activity towards phosphorylated alpha-1,4-glucans, compared to non-phosphorylated alpha-1,4 glucans, comprising
   a) incubating protein extracts in preparations separate from one another with
      i. phosphorylated alpha-1,4-glucans and
      ii. non-phosphorylated alpha-1,4-glucans,
   b) dissolving proteins specifically bound to the
      i. phosphorylated alpha-1,4-glucans from step a) i and
      ii. proteins specifically bound to the non-phosphorylated alpha-1,4-glucans from step a) ii

      in preparations separate from one another and
   c) identifying proteins which exhibit an elevated binding activity towards phosphorylated alpha-1,4-glucans used in step b) i, compared to non-phosphorylated alpha-1,4-glucans used in step b) ii.

2. (**Canceled**)

3. (**Canceled**)

4. (**Canceled**)

5. (**Currently amended**) An isolated protein obtainable by the method of claim 1, wherein the isolated protein is an OK1 protein and wherein said OK1 protein comprises SEQ ID No.: 5.

6. (**Previously presented**) A method for identifying a nucleic acid molecule coding for a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity,
   a) identifying a protein by a method according to claim 1,
   b) determining amino acid sequences coding for the protein identified according to step a) and
   c) identifying nucleic acid molecules using the amino acids determined according to step b).

7. (**Original**) The method according to claim 6, wherein nucleic acid oligonucleotides based on the amino acid sequence determined according to step b) are manufactured to identify said nucleic acid molecule according to step c).

8. (**Previously presented**) The method for identifying a nucleic acid molecule coding for a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity, comprising
   a) identifying a protein by a method according to claim 1,
   b) producing antibodies which react specifically with the protein identified according to step a) and
   c) identifying nucleic acid molecules using the antibodies produced according to step b).

9. (**Previously presented**) An isolated nucleic acid molecule obtainable by a method according to claim 6.

10. (**Previously presented**) A genetically modified plant cell, which exhibits an elevated enzymatic activity of a protein according to claim 5 compared to corresponding wild type plant cells which have not been genetically modified.

11. (**Original**) The genetically modified plant cell according to claim 10 which is a maize, rice, wheat, rye, oats, barley, cassava, potato, sweet potato, sago, mung bean, banana, pea, Arabidopsis, curcuma or sorghum plant.

12. (**Previously Presented**) A genetically modified plant cell comprising at least one foreign nucleic acid molecule according to claim 9 introduced into the genome of the plant cell.

13. (**Previously Presented**) The genetically modified plant cell according to claim 12, which synthesizes a modified starch compared to starch from corresponding wild type plant cells.

14. (**Previously Presented**) The genetically modified plant cell according to claim 13, which synthesizes a modified starch which has an elevated content of starch phosphate and/or a modified phosphate distribution compared to starch from corresponding wild type plants.

15. (**Previously presented**) The plant cell according to claim 14, wherein the modified starch exhibits an elevated content of phosphate covalently bound to the starch in the C-3 position of the glucose molecule compared to starch from corresponding wild type plant cells.

16. (**Previously presented**) A plant comprising genetically modified plant cells according to claim 10.

17. (**Original**) The plant according to claim 16, which is a maize, rice, wheat, rye, oat, barley, cassava, potato, sago, mung bean, pea or sorghum plant.

18. (**Original**) The plant according to claim 17, which is a maize or wheat plant.

19. (**Previously presented**) A method for identifying a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity and requires phosphorylated alpha-1,4-glucans as substrate, comprising

    a) incubating protein extracts with phosphorylated alpha-1,4-glucans,

    b) dissolving proteins specifically bound to the phosphorylated alpha-1,4-glucans from step a),

    c) incubating proteins obtained according to step b) respectively with

        i. ATP and phosphorylated alpha-1,4-glucans and

        ii. ATP and non-phosphorylated alpha-1,4-glucans

    in preparations separated from one another,

    d) examining the respective alpha-1,4-glucan obtained after incubation in step c) i or step c) ii for introduction of further phosphate groups and

    e) identifying proteins which in the incubation preparation according to c) i have introduced significant quantities of phosphate groups into alpha-1,4-glucans and in the incubation preparation according to c) ii have introduced no significant quantities of phosphate groups into alpha-1,4-glucans.

20. (**Previously presented**) The method according to claim 19, wherein the protein with alpha-1,4-glucan phosphorylating enzymatic activity uses phosphorylated starch as substrate.

21. (**Previously presented**) The method according to claim 20, wherein the protein with alpha-1,4-glucan phosphorylating enzymatic activity originates from a plant.

22. (**Currently amended**) An isolated protein obtainable by the method claim 19, wherein the isolated protein is an OK1 protein, and wherein said OK1 protein requires phosphorylated α-1,4 glucans as a substrate.

23. (**Previously presented**) A method for identifying a nucleic acid molecule coding for a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity, comprising
    a) identifying a protein by a method according to claim 19,
    b) determining amino acid sequences coding for the protein identified according to step a) and
    c) identify nucleic acid molecules using the amino acids determined according to step b).

24. (**Previously presented**) The method according to claim 23, wherein nucleic acid oligonucleotides based on the amino acid sequence determined according to step b) are manufactured to identify said nucleic acid molecule according to step c).

25. (**Previously presented**) The method for identifying a nucleic acid molecule coding for a protein which exhibits alpha-1,4-glucan phosphorylating enzymatic activity, comprising
    a) identify a protein by a method according to claim 19,
    b) producing antibodies which react specifically with the protein identified according to step a) and
    c) identify nucleic acid molecules using the antibodies produced according to step b).

26. (**Previously presented**) An isolated nucleic acid molecule obtainable by a method according to claim 23.

27. (**Previously presented**) A genetically modified plant cell, which exhibits an elevated enzymatic activity of a protein according to claim 22 compared to corresponding wild type plant cells which have not been genetically modified.

28. (**Previously presented**) The genetically modified plant cell according to claim 27 which is a maize, rice, wheat, rye, oats, barley, cassava, potato, sweet potato, sago, mung bean, banana, pea, Arabidopsis, curcuma or sorghum plant.

29. (**Previously Presented**) A genetically modified plant cell comprising at least one foreign nucleic acid molecule according to claim 26 into the genome of the plant cell.

30. (**Previously Presented**) The genetically modified plant cell according to claim 29, which synthesizes a modified starch compared to starch from corresponding wild type plant cells.

31. (**Previously Presented**) The genetically modified plant cell according to claim 30, which synthesizes a modified starch which has an elevated content of starch phosphate and/or a modified phosphate distribution compared to starch from corresponding wild type plants.

32. (**Previously presented**) The plant cell according to claim 31, wherein the modified starch exhibits an elevated content of phosphate covalently bound to the starch in the C-3 position of the glucose molecule compared to starch from corresponding wild type plant cells.

33. (**Previously presented**) A plant comprising genetically modified plant cells according to claim 27.

34. (**Previously presented**) The plant according to claim 33, which is a maize, rice, wheat, rye, oat, barley, cassava, potato, sago, mung bean, pea or sorghum plant.

35. (**Previously presented**) The plant according to claim 34, which is a maize or wheat plant.

36. (**New**) The isolated protein of claim 5, wherein the protein comprises SEQ ID No.: 4.

37. (**New**) The isolated protein of claim 22, wherein the protein introduces phosphate monoester bonds into the C-3 position of a glucose molecule of a P-α-1,4 glucan.